GSM Security Camera

EYE-02

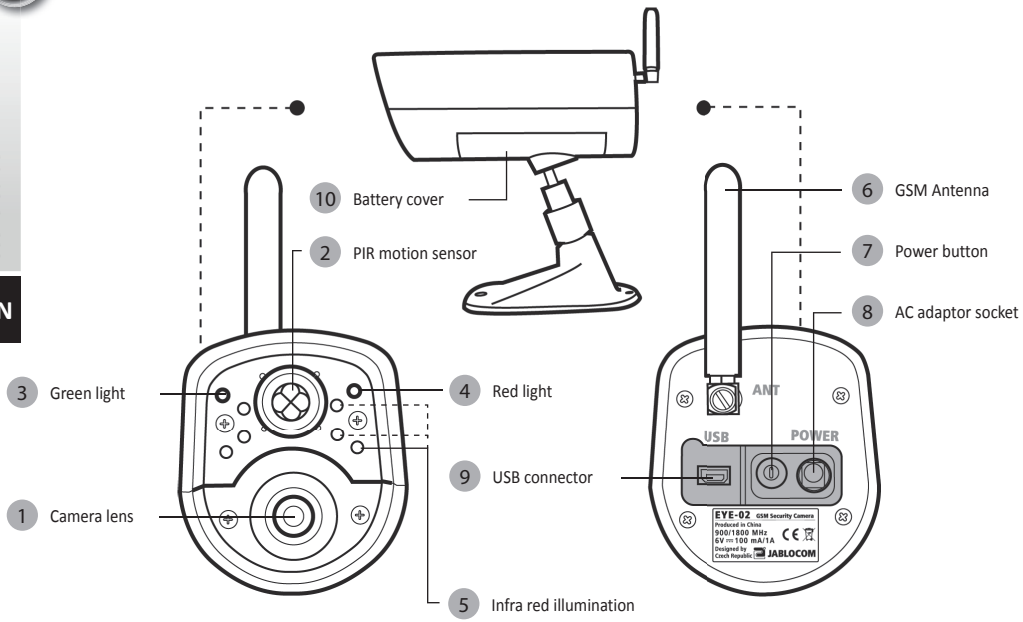
Watch your Life Anytime from Anywhere

JABLOCOM

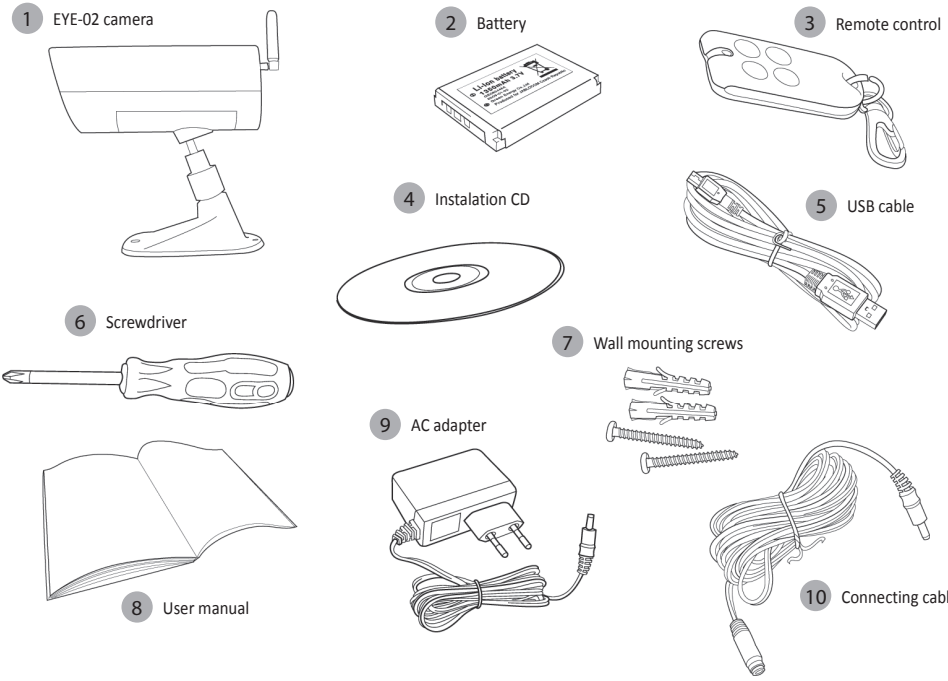
EN

User's Guide

A Camera EYE-02:



B Package content:



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Considerable effort has been made to ensure that this manual is free of inaccuracies and omissions. However, as we are constantly improving our products, if you need exact specification, please contact JABLOCOM.

1. EYE-02 Camera - Introduction

1.1 Basic Features

EYE-02 is a security and monitoring camera that communicates wirelessly via the GSM network.

EYE-02 integrates the following built-in detectors that allows to detect an intruder:

PIR motion detector	Detects movement by sensitive detection of human body temperature
Glass-break detector	Recognizes the specific sound of breaking window glass
Tilt and vibration detector	Recognizes any unwanted change in the camera's position and angle
Motion-in-Picture detector	Detects changes in a scene by taking snapshots regularly and comparing them

- EYE-02 is simple to install and configure (suitable for DIY installations).
- EYE-02 sends an alarm record using MMS, e-mail, SMS or voice call. Copies of pictures and videos can be stored on the memory card or can be stored at a web server. Alarm Receiving Centers are also supported.
- EYE-02 allows 24 hour monitoring via its night view mode.
- EYE-02 is compatible with a wide range of external wireless devices (refer to the table on the inside back cover of this manual).

1.2 EYE-02 Camera Description

Please refer to the picture A on the inside front cover of this manual.

1	Camera lens	6	GSM antenna
2	PIR motion sensor	7	Power button
3	Green light (LED)	8	AC adaptor socket
4	Red light (LED)	9	USB connector
5	Infra red illumination (LEDs)	10	Battery cover

1.3 EYE-02 Camera Internal Parts

Please refer to the EYE-02 camera picture D on the back cover of this manual.

2. Camera Installation

Before installing the camera, ensure you have a SIM card provided by your GSM operator with an activate EDGE/GPRS internet connection and MMS service.

Some SIM cards are protected by PIN code. It is necessary to disable the PIN code protection of the SIM card. To do this, insert the SIM into your mobile phone and disable the PIN security code. If this is not observed, the EYE-02 camera may not operate correctly.

2.1 Package Contents

Unpack the camera and check the package contents. Please refer to the picture B on inside front cover of this manual.

1	EYE-02 camera	6	Screwdriver
2	Battery	7	Wall mounting screws
3	Remote control	8	User manual
4	Installation CD	9	AC adapter
5	USB cable	10	Connecting cable

Use only batteries, chargers and accessories approved by JABLOCOM for use with this particular model. The use of any unapproved device may invalidate any approval or warranty, and may be dangerous.

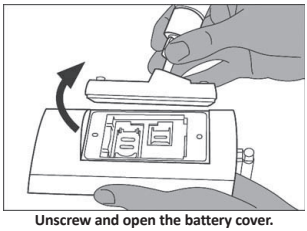
2.2 Installation

For an extended graphic version of the installation procedure, see the Quick Guide manual.

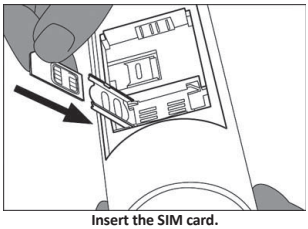
Before inserting SIM card into camera make sure that:

- PIN protection is disabled
- MMS service is enabled
- Internet data access is enabled

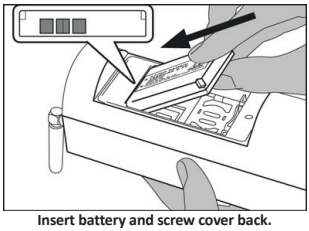
- Insert SIM card and battery into camera



Unscrew and open the battery cover.

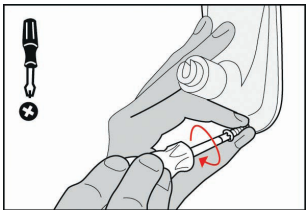


Insert the SIM card.

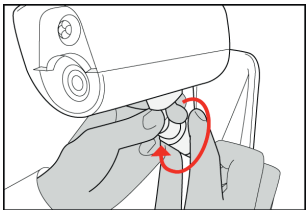


Insert battery and screw cover back.

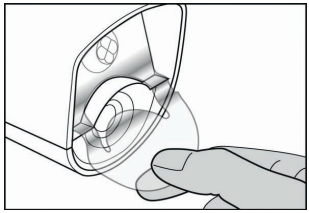
- Install the camera to the selected position



Mark and drill-out fixing holes on a wall. Mount the camera holder firmly.

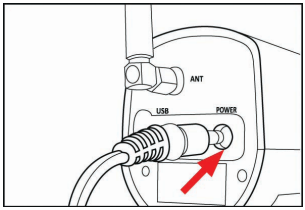


Adjust the camera position.

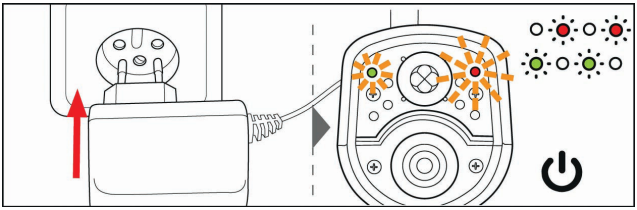


Remove the lens protection.

- Connect camera to power source

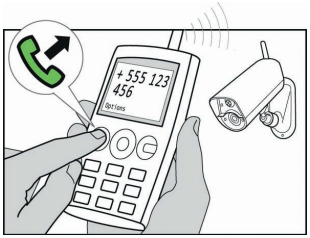


Plug the power cable to the camera.

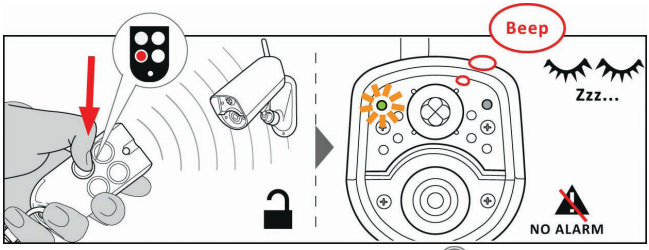


Plug the power adaptor to a wall socket. The camera will automatically turn on. Wait 30 seconds and check the EYE-02 camera LED lights on the front panel.

- Enroll your mobile phone and remote control to the camera



Call the camera number from your mobile phone.



On the remote control, press the button .

3. Camera Function

3.1 Working Modes

The EYE-02 camera has three main working modes: **SLEEP**, **WATCH** and **CONFIG**.

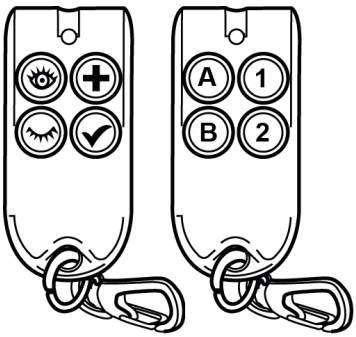
Mode	Description	Button on the Remote Control
SLEEP	SLEEP mode is a stand-by mode of the camera. The camera doesn't detect any movement in the targeted area and the major detectors are disabled. The only active detectors are those that protect camera itself against an unwanted manipulation by an intruder.	
WATCH	In WATCH mode camera guards fully the targeted area, all detectors are active.	
CONFIG	CONFIG mode allows user to change camera settings and switch the camera to other special modes (ENROLL, TEST, USB).	and together

The chosen camera mode is terminated by switching to a different camera mode.

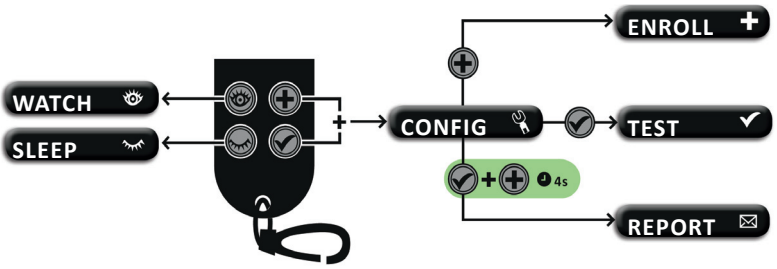
3.2 Remote Control

The package contains a wireless remote control (RC-86 type), which can be used to switch between camera modes.

Changing a mode by using the remote control is signaled both by the LED lights on the camera front panel, and by an acoustic signal. Meaning of the LEDs and acoustic signals is as follows:



Remote control



Remote control navigation

Camera Mode	LED lights signaling		Acoustic signal
WATCH	Lights are Off.		One long beep
SLEEP	Green light is permanently On.		Two long beeps
CONFIG	Red and Green lights blink slowly together.		Three long beeps
ENROLL	Red and Green lights swap blinks slowly.		One short beep
ERROR	Red light is permanently On[1].		

The progress of the camera startup and shutdown and also the USB mode is indicated by fast green light flashing.
Entering USB mode is signalized by four long beeps.
Incorect operation with remote control is indicated by 4 short beeps.

3.3 CONFIG Mode

CONFIG mode allows the user to change camera's settings.

To enter the CONFIG mode by the remote control, press ⊕ and ✓ buttons simultaneously – red and green LED lights on the front panel will start to blink slowly at once.

From the CONFIG mode is possible to switch to other special modes (ENROLL, TEST, REPORT, USB).

MODE	DESCRIPTION	COMMAND
ENROLL	In the ENROLL mode, the camera allows to enroll new external wireless devices such as remote controls, detectors, sirens, etc. Also a new contact – phone number can be enrolled in this mode by just a simple call to the camera. ENROLL mode is terminated automatically after one new items has been enrolled.	⊕
TEST	TEST mode is a special mode for testing functionality of all detectors without causing number of unwanted alarm reports. Camera beeps and blinks after activation of any sensor.	✓
REPORT	In the REPORT mode, the camera sends a special report to all contacts (call, MMS etc.) according to the camera settings. Example of an SMS from the camera: Camera EYE-02 reports: User originated camera test External wireless device RC-80(1), Time:13/11/2008 11:33:49.	press ⊕ and ✓ buttons simultaneously for about 4 sec
USB	In this special mode camera behaves as a standard USB flash disk. It allows to access files on the SD memory card without installation of a special camera driver to PC.	Press power button ⏻ in CONFIG mode for 3 seconds (until camera makes 4-beeps)

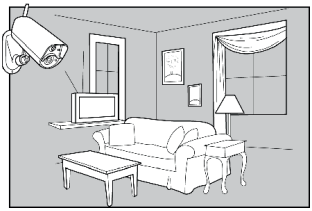
To protect the camera's safety, special modes will be closed automatically after a 5 minutes timeout and the camera returns to CONFIG mode.

1 The Red light disappears when the fault has been resolved or user has switched mode.

3.4 PROFILES

The EYE-02 camera allows fast and simple setting of all necessary detector parameters by selecting one of the pre-defined PROFILEs. These profiles are suitable for most camera applications. If necessary, the profile may be further adjusted by the user.

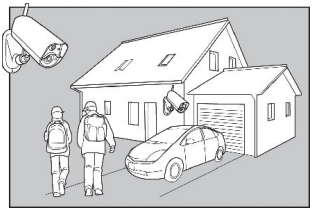
▸ HOME



HOME profile has been designed for camera installation inside a building (house, flat, office). During the WATCH mode, there are no movements of people, no wind drafts, no significant temperature changes, or loud noises etc. expected.

The TILT detector is active also in the SLEEP mode to protect the camera against an unwanted manipulation.

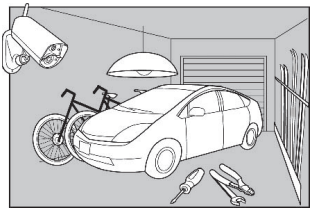
▸ OUTDOOR



OUTDOOR profile fits best camera installation outside your home.
The camera significantly reduces its detectors' sensitivity in the OUTDOOR profie as there are many possible sources that could cause a false alarm triggering (sunshine, animals, street noise, wind, etc.).

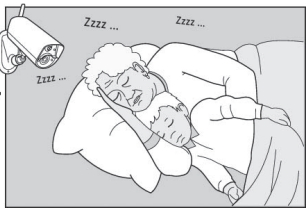
For outdoor installation see chapter 5.9.

▸ GARAGE



This profile is suitable for installation inside your garage. It is similar to the HOME profile. Additionally, the GARAGE profile provides a 30-second entrance delay. It allows you to open the garage or home entrance door first and switch the camera to the SLEEP mode during this delay.

▸ CARE



Profile CARE has been especially designed for monitoring small children and elderly or disabled people.

The camera used in the CARE profile allows the user to leave its home, stay in a short distance away from the home and watch its sleeping baby or ill grandmother etc. at the same time.The camera is activated by any movement or by a PANIC alarm (triggered by a personal wrist button)

The internal acoustic camera signals are disabled in the CARE profile. Also the TILT detector is blocked to allow the camera manipulation.

▸ SHOP

The most powerful profile is SHOP. In this profile, all detectors are active, including the permanent process of "Motion in Picture" detection. This profile offers the highest quality of permanent monitoring; consequently it is the highest energy consumption profile.

This profile perfectly fits places requiring a whole day monitoring and a full protection during the night time, such as shops, office corridors and reception areas, etc.

The default profile is HOME. For switching the profile used SMS command PROFILE (For details see chapter 4.2). You can switch mode and make some additional sensor customization also in JabloTool software.

3.5 Detectors

The EYE-02 camera integrates a wide range of detectors. This sophisticated solution of combining various types of detectors enables the user to protect the desired area from a wide range of threats. This chapter briefly describes individual detector principles necessary for a correct setting of detection.

PIR motion detector (PIR)

PIR detector (Passive InfraRed sensor) or a Human Body Detector is the most common type of professional security systems detectors. PIR can detect even very small changes of temperature differences in front of the camera.

Motion-In-Picture detector (MIP)

The key principle of this detector is derived from a professional surveillance camera system. It analyzes the scene and detects any change in the picture permanently.
A sophisticated digital algorithm provides an excellent resistance to false alarms caused by non-essential changes in pictures (getting dark, switching on the street lamps, etc).
The user can simply mask-out (hide) a part of a picture in order not to detect changes in this part (mask of the street traffic, etc.) and set the sensitivity according to the size and speed of change in the picture.
As the DSP method is energy demanding, MIP is usually activated after some alert from the PIR detector.

Glass-break detector (GBS)

Glass-break detector uses a digital signal analysis from the microphone and is able to detect a characteristic sound of the window breaking up to 9 meters away.
The Door-Opening-Detection is a special type of the detection that uses the acoustic signal filtering. It allows detection of the infrasonic wave (pressure wave) caused by a door or window opening.
GBS sensor can be used for indoor installations only.

Tilt and vibration detector (TILT)

Built-in tilt and vibration detector can detect a tampering or an unwanted manipulation of the camera.

Example: Stealing the camera body or changing camera position.

As vibration detectors are very sensitive, it should not be used for outdoor installation to prevent the false alarms caused by the wind gusts. The vibration detector sensitivity reduction may be necessary also for indoor installation with usual vibrations in some cases.

The detectors are optimized for application in rooms with a maximum distance up-to 10 meters.

Detector configuration

Each detector can be configured to 3 sensitivity levels and 3 levels of analysis.

Higher sensitivity settings mean that detector si activated more easily.

Example: Smaller movement or smaller vibration will be interpreted as activation.

Higher analysis level means that for activation more analysis has to be made before it is rated as activation.

Example: The movement or sound have to last longer or object (person) has to cross more detection zones etc..

3.6 Reports & Contacts

The EYE-02 camera can report events to mobile phones (via voice call, text message, MMS) or to e-mail addresses. Up to 10 different phone numbers and 10 e-mail addresses can be saved to the camera list.

Report levels

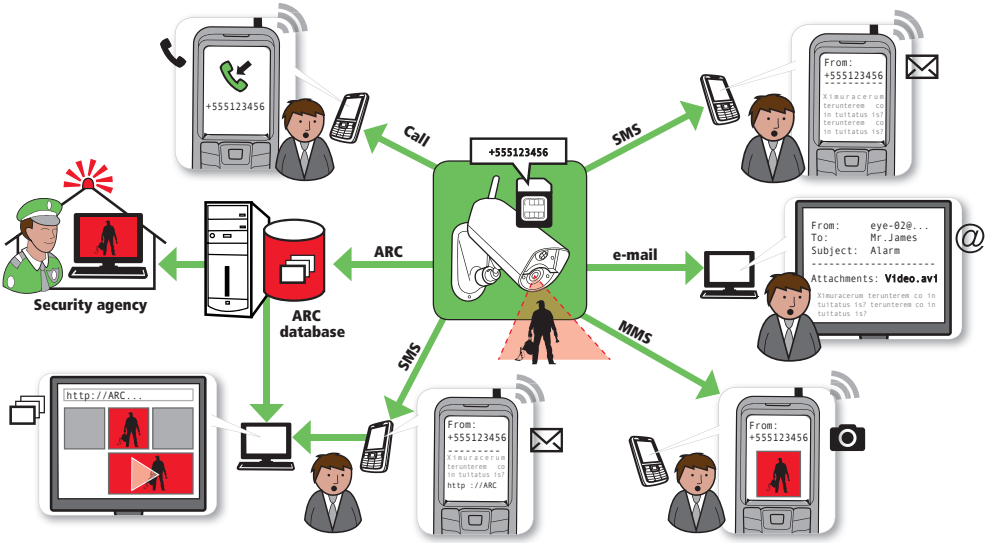
Each stored contact can have its own report level set. Three levels (Normal, Extended, All Details) indicate how many events are reported to the contact.

The extended level of reporting is assigned only to the first enrolled contact, all additional contacts get normal level.

REPORT LEVELS	ALARMS	TROUBLES	STATUS CHANGES
NORMAL	✓	–	–
EXTENDED	✓	✓	–
ALL DETAILS	✓	✓	✓

Report format

By default settings, camera sends alarm report as MMS and makes a call to all enrolled contacts. All other reports come as SMS to the user.

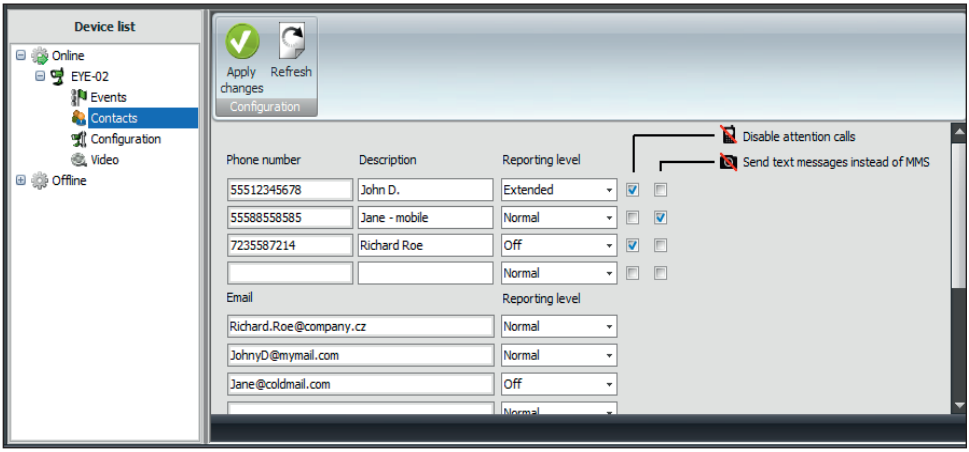


Editing contacts

To add a new contact by calling, you can call the EYE-02 camera directly from a new phone number while the camera is in the ENROLL mode.

New contacts may also be added via an SMS command (see chapter 4.2, CONFIG commands).

The most comfortable way of editing contacts is JabloTool software. You may simply edit the numbers or e-mail adresses and completely customise what events will be reported at which reporting level.



Jablotool DESKTOP - contacts configuration

Consider also the possibility connecting the EYE-02 to the security agency Automatic Receiving Centre (ARC, see section 5.3). If you are not going to use ARC, think about whom should be sent the alarm information. In case remote location it is useful to add someone who is at camera's place (neighbours, etc.).

If there are no phones saved in the contact list (after installing a new EYE-02 camera or after using the factory reset function), the camera switches automatically to ENROLL mode (after power on) and waits for an incoming call.

Camera sends e-mails with the reply address noreply@eye-02.info. Please check your e-mail client SPAM filter to accept e-mails from this address.

3.7 SECURITY SETTINGS

Camera is not protected by any password in the factory settings.

Without setting a password the camera processes incomming SMS messages or receives calls only from phone numbers stored in Contacts. It is possible to setup two passwords. For password setting or changing use JabloTool or configuration SMS commands (chapter 4.2).

- **Remote Access Password**

This password protects any access to your camera (SMS, JabloTool).

If it is used, camera process SMS messages that begins with the password from any phone number.

- **Configuration Password**

This password protects camera configuration. (The contacts are not part of configuration.)

Password can contain 4-31 characters, allowed symbols are 0..9, a..z, A..Z. Password is not case sensitive.

Protect your camera by setting the Remote Access Password.

4. CAMERA CONFIGURATION

4.1 SET-UP AND CONFIGURATION VIA PC

The most convenient way to set-up the EYE-02 camera and configure its parameters is by using PC and the JabloTool software.

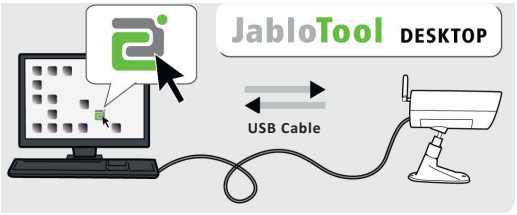
JabloTool **DESKTOP** is available as a software on the installation CD included in the camera package.

JabloTool **WEB server** works remotely with the camera from *www.jablotool.com*.

Function of both JabloTool versions are the same, the only difference is in the method of connection to the camera - **JabloTool WEB** requires a connection to the internet and establishes a cable-free connection with the camera, **JabloTool DESKTOP** interconnects the camera with the PC by a USB cable. The advantage of the USB connection is a faster data transfer from the camera.

- **JabloTool DESKTOP**

Load the installation CD to your computer, start the **"INSTALL.EXE"** and follow the program instructions.



EYE-02 connection with JabloTool DESKTOP

Do not connect the EYE-02 camera to the USB on your computer until you have finished installing the JabloTool software from the CD!

The latest version of the installation software can be downloaded from www.jablotool.com/download.

Turn the camera On and connect it to the computer by the USB cable. Wait until the operating system recognizes the camera. Click on the JabloTool icon on the desktop than to load the program and follow instructions on the screen.

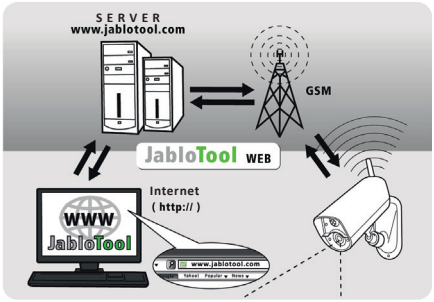
JabloTool

The maximum length of a USB cable is usually 5 meters. If your EYE-02 camera is too far, you may need to remove it temporarily from its location or bring your PC nearer.

JabloTool WEB

JabloTool WEB is a service at ***www.jablotool.com***.

User accessing its EYE-02 camera trough the JabloTool WEB will be guided to establish the connection to the camera. If the user is not registered or if the EYE-02 camera is not protected by a Remote Access Password, the user will have to send a special SMS authorization command from his mobile phone first to initiate the EYE-02 camera connection to JabloTool.



EYE-02 connection with JabloTool WEB

4.2 SMS Commands

Basic EYE-02 camera functions can be operated by text message (SMS) commands sent to the camera. Commands are accepted only when sent from a mobile phone number stored in the contact list.

If the EYE-02 camera is protected by the **Remote Access Password** or the **Configuration Password**, each SMS must be introduced with the appropriate password. Using the password the camera can be operated from **any** phone.

Please note passwords and commands are case insensitive.

Control commands

Control commands report or change the camera state.

COMMAND	DESCRIPTION
WATCH	Switches EYE-02 camera to the **WATCH** mode. *Example: <Remote Access Password> WATCH* If the camera remote access is protected by the password MIKE, the command must be send as: *MIKE WATCH* Camera will confirm the message with a status SMS.
SLEEP	Switches EYE-02 camera to the **SLEEP** mode.
STATUS	EYE-02 camera will return an SMS indicating the current camera status. *Example of a response: Camera EYE-02 status: SLEEP mode, Time: 12/11/2009 13:56:31, SwitchX : Off, SwitchY: On* *Camera EYE-02* Name of your camera *SLEEP mode* Current camera status *Time:12/11/2009 13:56:31* Time (date) of status report *SwitchX: Off* Indication that SwitchX is curretnly off. *SwitchY: On* Indicates that SwitchY is currently on. The name SwitchX (SwitchY) can be changed to whatever you want need - see the table below.
PICTURE	The EYE-02 camera returns a multimedia message with a picture of the current scene in front of the camera. The message also contains current camera status.
REPORT SMS	The EYE-02 camera sends a report of the 10 latest events. Camera sends up to 5 SMS.
REPORT MMS	EYE-02 camera sends an MMS with the last alarm event recorded in the camera history.
CREDIT <USSD>	This command has been designed especially for the prepaid SIM cards. The EYE-02 camera will return a text message with information about the current credit on your SIM card. This function is provided by your network operator and might not work correctly on some networks. After the first using of this command camera keeps the USSD part. It's possible to send CREDIT command only since then.
HELP	Camera returns a text message with a list of the SMS commands.
WEB	Command is for connecting the camera to the JabloTool server. The server describes detailed syntax for the command.

COMMAND	DESCRIPTION
ON / OFF DeviceX / DeviceY	If the camera is enrolled to a wireless relay, this command switches its programmable output. This command works only if output is switched into sms on/off or pulse control mode. *Example: <Remote Access Password> OFF DeviceX* Switches OFF DeviceX *Example: 1234 ON Sprinkler 100s* Switches ON „Sprinkler" output for 100 seconds Device names DeviceX/DeviceY can be renamed in Jablotool. Possible Action is ON and OFF only. Output in pulse mode can be switched ON only. Time parameter is optional. It can be 01:30:00 format or 1h 30m 0s.

▸ CONFIG commands

CONFIG commands change the EYE-02 camera settings. Camera confirms configuration commands with an SMS.

COMMAND	DESCRIPTION
CONFIG PROFILE <profile>	Profile setting, <profile> is **HOME**, **OUTDOOR**, **GARAGE**, **SHOP** or **CARE** *Example: CONFIG PROFILE SHOP* Camera switches to the profile **SHOP** *Example: <Configuration Password> CONFIG PROFILE HOME* Camera will switches to the profile **HOME**
CONFIG CONTACT	Add a new contact. *Example: CONFIG CONTACT MyEmail@domain.com* The e-mail address myemail@domain.com will be added to the EYE-02 camera contact list, ALARM reports will be sent to this e-mail address including the video records. *Example: <Configuration Password> CONFIG CONTACT +555888770551* The phone number +555888770551 will be added to the EYE-02 camera contact list. ALARMs will be reported to this phone number in accordance with default settings via a voice call and anMMS.
CONFIG LANG <language>	Changes the EYE-02 camera language settings. Camera sets the language according to the inserted SIM card automatically. If the SIM card language is not installed in the camera, English texts remains. *Example: CONFIG LANG GER* changes the default language to German. *Possible languages: ENG, GER, SPA, FRE, FIN, SWE, NOR, SQI, ARA, CZE, DAN, GRE, HRV, HUN, ITA, DUT, POL, POR, RUM, RUS, SLK, SWE, TUR.* For the list of currently installed languages in your camera send an SMS: HELP LANG *Example of an answer from the camera:* *Camera EYE-02 help: LANG ENG, CZE, GER, SPA, FRE*
CONFIG DELAY <time>	Changes the Exit delay timer setting, <time> is time in seconds. *Example: CONFIG DELAY 25* sets the exit delay to 25 seconds
CONFIG POWER <mode>	Changes the power mode, <mode> can be NORMAL or BATTERY. *Example: CONFIG POWER BATTERY* changes power mode to BATTERY mode
CONFIG DATE	Sets date and time in format YYYY-MM-DD HH:MM:SS. *Example: CONFIG DATE 2009-10-24 08:34:02*
CONFIG ACCESS	Sets or changes the Remote Access Password. *Example: CONFIG ACCESS 5678* for setting the password *Example: 1234 CONFIG ACCESS 5555* for changing the password
CONFIG PASSWORD	Sets or changes the Configuration Password. *Example: CONFIG PASSWORD 5678* for setting the password *Example: 5678 CONFIG PASSWORD 8888* for changing the password

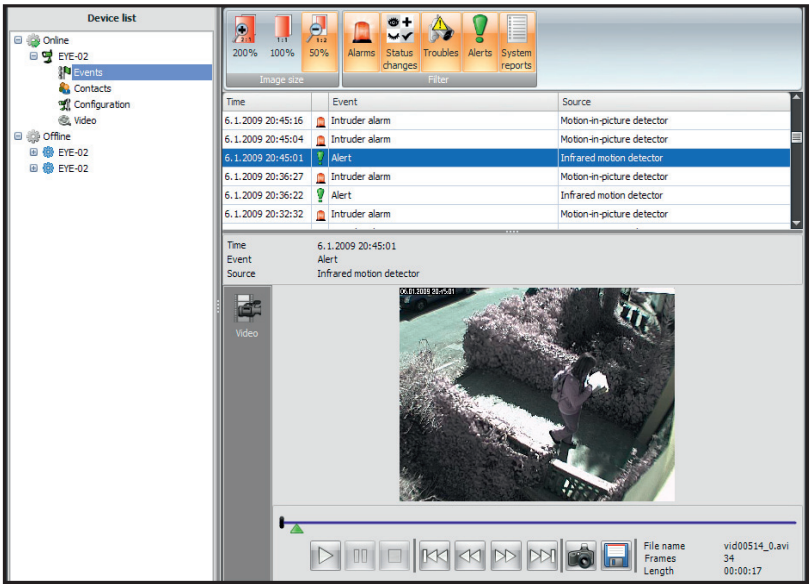
When the camera is switched to other language than English, it still accepts English commands as well.

4.3 Event Reports

Every event detected by the EYE-02 camera is recorded into the camera's memory.

The event record consists of the date and time mark, detail description of the event including its source and a video record.

Example of Events history viewed by the JabloTool software:



Jablotool Desktop - events list

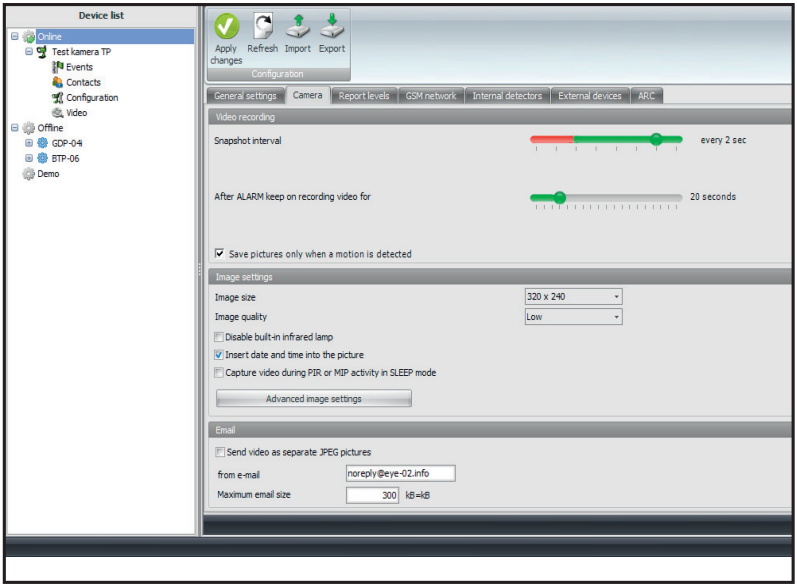
There are many types of event records. The most important are ALARM reports, which are reported to the contacts from the contact list immediately. Other types of records are the ALERT records (similar to ALARM, but ALERTs are not reported to the contacts) or some technical reports (Example: information about the AC power failure).

4.4 Video Record Setting (Available through JabloTool only)

The EYE-02 camera allows a detail setting of all important parameters for collecting video records under many conditions.

Parameter	Settings	Description
Snapshoot interval	from 20 frames per sec, to 1 frame per 5 sec	The frequency of snapshots. Higher frequency increases the video record file size.
After ALARM keep on recording video for	(0 sec, 5sec, 10sec ,... 2 min, 5 min, 10 min) *Default value is 20 seconds*	Camera keeps video recording for some time period after an ALARM.
Save pictures only when a motion is detected	Next snapshot (frame) will be saved to the video record file only if a change there has been detected a changing to the previous snapshot. If the pictures are almost the same, it will not be stored. This setting SIGNIFICANTLY reduces the video file size.	
Image size	160x120, 320x240, 640x480 pixels *Default value is 320x240 pixels*	Image resolution in pixels. Higher resolution increases the quality of recorded pictures but it also increases the size of video files and lengthens the time for transfer it via GSM network.
Disable build-in infrared lamp	An internal IR lamp is automatically switched on when the lightness of the scene is too low for normal camera function. This option disables this automatic function and it is mostly used if the illumination is done by an external lamp.	
Insert date and time into the picture	A small timestamp will be inserted into the left top corner of the picture. This helps to determinate exactly the time of the snapshot.	
Capture video during PIR or MIP activity in SLEEP mode	The video recording continues also in SLEEP mode if there is some activity detected in front of the camera. This is well usable for shops, petrol stations and other places where permanent watching is required.	
Send video as separate JPEG pictures	5 JPEG pictures will be sent by e-mail instead of AVI video files.	

Please consider that even though the size of MMS and email is limited to 300 kB and 1 MB respectively, sending such MMS or e-mail may take up to several minutes according to your local network conditions. To reduce the file size and fasten sending you can choose a lower image resolution, snapshot interval or recording duration.



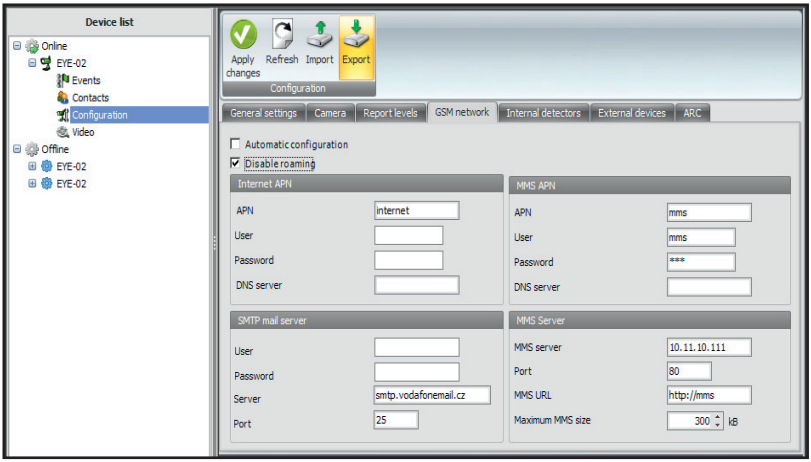
Jablotool DESKTOP - video recording configuration

4.5 GSM Network Setting

The EYE-02 camera needs correct settings of some GSM network parameters. These parameters depend on the country you live in and on the GSM network you use.

The EYE-02 camera can automatically adjust the correct setting for most of GSM networks. In case there are some specific settings of your GSM network, which you got from you GSM network operator, you can configure it manually in JabloTool, Device configuration, GSM network folder.

Please contact your GSM service provider for detail parameters setting.



Jablotool DESKTOP - GSM network configuration

5.1 Call Control

The EYE-02 camera provides a basic control function when it is called from a user's phone. When a phone saved in the contacts calls the EYE-02 camera, the camera answers the call and plays the basic navigation menu:

- **Welcome to Camera menu:**

  To listen to the sound from the camera microphone..... press 1,
  to receive an MMS with a current picture..... press 2,
  to receive an MMS with the last alarm record ..... press 3,
  to receive the latest events history in a text message ..... press 4,
  to switch the camera to the WATCH mode ..... press 7,
  to switch the camera to the SLEEP mode..... press 9.

The user can select a requested action by pushing the appropriate number key on his mobile phone.

5.2 Night View

The EYE-02 camera is equipped with a Night View function, which allows taking the infra-red spectrum photos.

The EYE-02 camera has a built-in infrared LED lamp, which can illuminate the scene by non-visible infrared light. Although the human eye can't see such light, the camera chip can collect a picture in this spectrum.

The infra lamp illumination is activated automatically when taking a picture is requested and the level of ambient light is too low.

Due to posibility to see invisible infrared light, the object that reflects IR light might have unrealistic colours on daytime pictures. The most affected is color of green plants (trees, grass) as they reflect high amount of IR light. Also some parts of black (dark) clothing can look light grey.

The night scene may be overexposed by IR lamp reflection from close located objects. In such case the internal IR lamp should be disabled in the camera configuration and an external IR lamp should be used instead. For more information about IR illumination see application notes on www.jablocom.com .

5.3 Monitoring

The EYE-02 camera can report all events from the system to the professional Alarm Receiving Centre - ARC (also known as Central Monitoring Station).

Refer to the picture "**E"** on the back cover page of this manual for understanding of the EYE-02 communication with a commercial security agency ARC.

Reports are done in accordance with international standard communication protocols. Protocol settings will be done by authorized ARC service provider once you subscribe to their service. For supported protocols see application notes on www.jablocom.com .

5.4 Switching OFF and ON

To switch the EYE-02 camera OFF, switch it to the **CONFIG** mode (see chapter 3.3).

Press the power button ⏻ on the back panel for one second. The camera makes a beep. When the green light on the front panel switches off, the camera shuts down.

If the vibration and tilt detector (TILT) is not enabled for SLEEP detection and also recording in SLEEP function is disabled, it is possible to switch off the camera also in SLEEP mode. Both functions are disabled in predefined profile CARE.

To switch the EYE-02 camera ON, press and hold the power button on the back panel of the camera. Keep holding the button until the green light on the front panel switches on. The start-up process has started and you can release the button.

The camera also starts up automatically after it is connected to the AC adaptor or to PC by a USB cable.

Whenever the camera is expected to be switched off for a longer period of time or for transportation, it is strictly recommended to remove the backup battery from the EYE-02 camera.

The camera starts in the same mode it was before switching off with the following exception: In case you do not have enrolled any remote control and contact (phone number) camera starts in ENROL mode in place of CONFIG or SLEEP mode. For normal operation there must be minimum 1 remote control and 1 number enrolled in the camera.

5.5 Battery

The EYE-02 camera has an internal backup Li-Ion battery, which allows operating in case of the loss of AC power. If used in any of the predefined profiles, the backup battery allows the camera to operate for approximately 24hours. Any individual sensor configuration may shorten this period accordingly.

In case of active MIP sensor, the backup time may be as short as 40 % of the original value. In case of simultaneous use of IR illuminator working during AC failure, the backup time may drop to 20 %.

Please, note that each item of network communication will shorten the backup time rapidly, especially if the camera is operated in a poor network coverage area.
Using the device with 3G network may also significantly decrease battery backup time!

▸ Battery mode

In certain cases, for example when used in locations where AC power isn't available, it may be desired to extend the battery operation duration. In such case you may use the special **BATTERY** mode.

When in the **BATTERY** mode, the EYE-02 camera reduces dramatically its power consumption in WATCH. It logs out from the GSM network, switches off the short range radio receiver and switches on the motion-in-picture detector only after ALERT. It means that the EYE-02 camera, while in the **BATTERY** mode, can not be reached by calls or by SMS commands. Additionally, the external detectors and remote controls cannot be used for the BATTERY mode, too.

The EYE-02 camera keeps all the internal detectors working and reports all events as in the **NORMAL** mode. After an ALARM, the EYE-02 camera switches on the radio and logs onto the GSM network for 2 minutes. It reacts to calls, SMS commands and remote controls during these 2 minutes only.

A fully charged battery in the BATTERY mode can operate the EYE-02 camera for up to 30 days.

5.6 Micro SD card

The EYE-02 camera is equipped with an SDmicro memory card slot allowing further extension of the internal storage capacity. The EYE-02 Camera comes with an inserted 1 or 2GB memory card.
JabloTool DESKTOP software allows you to switch the EYE-02 camera into the USB mode in which you can access the SD card as a standard flash disc from an attached PC. To switch to the USB mode, display the device state screen, switch it into the Advanced user mode, choose CONFIG and USB mode.

Other EYE-02 camera functions are blocked during the PC direct access to the SD card.

When exploring the SD card, you will find the following folder structure:

HISTORY	This folder contains files with complete (all details) log of event history. Files are stored sequentially in the "ev00001.txt" format.
PICTURE	Archive of static JPEG files recorded at ALARMs (For example: **"p0065401.jpg"**)
VIDEO	Archive of AVI video files recorded during ALARMs (For example: **"vid01021.avi"**)
config.txt	A file with the current configuration of EYE-02 – can be used for backup or restore of configuration.

Camera keeps more than 10% of free space on the memory card. Automatically deletes old files.

The SDmicro memory card also contains some esential data for camera. In case you replace your card with another one always use Jablotool to restore data structures.

5.7 Reset to Factory Defaults

If necessary, the EYE-02 camera can be RESET to the factory default settings following this guide:

Warning: All user settings, contacts and events will be deleted! Memory card will be formated. Events an files downloaded into the JabloTool DESKTOP software remain in PC.

- Switch off the camera, remove the battery.
- Wait at least 10 seconds.
- Press the power button and while holding it, do the following steps.
- Insert the battery.
- Within 10 seconds connect the AC power adaptor.
- Camera starts producing fast beeps.
- Wait until the camera makes 3 longer beeps and both LEDs (R+G) start flashing. Release the power button.
- Camera resets and restarts into the ENROLL mode.

5.8 External Wireless Devices

The EYE-02 camera has a built-in short range radio transceiver, which allows communication with a wide range of professional security wireless devices from OASiS system produced by JABLOTRON ALARMS (see *www.jablotron.com*).

This is a very simple way to extend your camera function to provide additional services such as:

- heating control by a mobile phone
- PANIC button function for elderly or disabled people.

Refer to the table on the inside back cover page of this manual for a brief review of available types of wireless devices.

For enrolling a new device use JabloTool software (EYE-02/Configuration/External devices/Add new device) or switch the camera to the **ENROLL mode.**

For installing all wireless components follow their manual.

- Remote controls / panic buttons: switch the camera to the **ENROLL mode**, press any button on the remote control.
- Detectors: switch the camera to the **ENROLL mode**, insert the battery in to the detector.
- JA-80L Siren: switch the camera to the **ENROLL mode**, plug the siren to the wall socket.
- JA-80A Siren: switch the camera to the **ENROLL mode**, connect the battery in the siren socket.
- AC-82 Wireless relay: switch the camera to the **ENROLL mode**, follow the manual of AC-82. For activating the transmitter of EYE-02 press the power button on the camera shortly.

Once the camera is enrolled into the wireless relay, you can choose function of the relay outputs. Outputs can be managed by an SMS, can signal the mode of camera, etc. For settings go to JabloTool EYE-02/Configuration/External devices/ Programmable outputs.

For more information about wireless devices see application notes on www.jablocom.com

5.9 Outdoor Installation

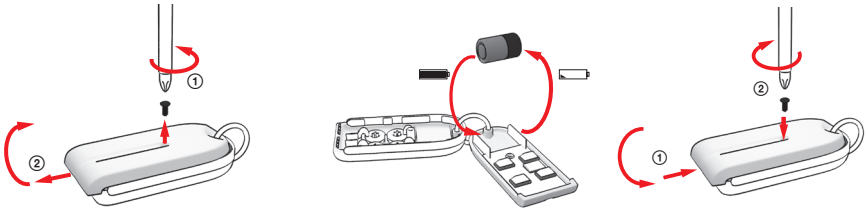
Although the EYE-02 camera housing provides a basic humidity resistance, it is required to use an additional plastic housing when mounted outdoors to protect the camera against rain and snow. If an external housing with a front glass is used, the internal IR illumination must be switched off and an external IR lamp must be used.

Please visit the *www.jablocom.com* web page to see the detail application notes about outdoor installation or usage with a solar power panel.

6. Maintenance

The EYE-02 camera doesn't require any special maintenance.

- Check the event reporting function by the **REPORT command** at least once a month.
- Regularly test the basic function of all detectors by the **TEST mode.**
- Regularly test the battery of the remote control by pressing any button. If the light on your remote does not switch on, the battery is discharged and should be replaced. Replace the battery with a new one of same or equivalent type.



Remote control - battery replace procedure

- Once a year, check the camera's battery capacity – see chapter 8.1 Battery information.

7. Troubleshooting

JABLOCOM will periodically release new versions of the EYE-02 camera software as well as the JabloTool software. Visit *www.jablocom.com* to find the latest version of the EYE-02 camera firmware, supporting software and detailed guide to troubleshooting.

Problem / Error message	Solution
RED light on the front camera panel	• Your SIM card is out-of-service or blocked by a PIN code – remove the SIM card the camera, put it into your GSM phone and try to make a call and send an SMS. If PIN protected, please remove the PIN or set it to default network value. • Your SIM card isn't placed in the SIM holder correctly, or the camera doesn't support your SIM card type. Check if the SIM card is placed in the holder correctly or contact your GSM service provider. • Camera location is not covered by GSM network signal - check the quality of GSM network signal directly at the place of the camera installation: place your mobile phone close to the camera, wait a few seconds and read the signal strength from your phone display. If the signal is too low you might try to replace original camera GSM antenna by another approved type of GSM antenna with a higher gain.
The EYE-02 camera doesn't react to remote control	• Flat battery in your remote control – press a button and check if the light on your control goes on. If not, replace the remote control internal battery. • The remote control has been accidently deleted from the EYE-02 camera configuration. Use PC with JabloTool software, open the ENROLL mode and press any button of your remote control to enroll it in to the EYE-02 camera.

If you discover abnormal EYE-02 camera behavior, please try to update EYE-02 camera firmware to the latest version. To do this, use JabloTool, Configuration, Control panel, Firmware upgrade.

8. Technical Specification

Camera dimension	155x75x55 mm, 300 g
Package dimensions	300x215x75 mm, 950 g
Extended memory capacity	SD micro card slot, maximum capacity 32 GB, standard Package includes 2 (1) GB SD memory card[1]
Image resolution	VGA (640x480), QVGA (320x240), QQVGA (160x120)
Picture format	JPEG, EXIF 2.2
Video format	MJPEG
Lens	focal length 2.9 mm, view angle 95°
Infra reflector	6x Infra LED, 6x 100mW, wavelength 850nm, emitting angle 80°
PIR motion detector	detection range 10m / 140°
MMS support	MMS version 1.2 over WAP 2.0
Events history	min 100 records in an internal memory + extension to SD card
Operating temperature	-20 °C to +55 °C; 25 to 75 % humidity
AC power adaptor	100 - 240 V AC, 50 to 60 Hz, 6 V / 1.67 (2) A DC[1]
Input power (range)	5.0 - 6.7 V / 1 A DC
Back-up battery	Li-Ion battery, 1300 mAh[2]
Network connectivity	GSM quad band 850/900/1800/1900 MHz for EYE-02 GSM dual band 900/1800 MHz and UMTS dual band 900/2100 MHz for EYE-02 3G
GSM antenna	External GSM antenna , SMA connector
Data connectivity	EDGE class 10: max. 180 kbps DL / 120 kbps UL, GPRS class 10: max. 85.6 kbps, CS1-4 UMTS PS rate – 384 kbps DL / 384 kbps UL, UMTS CS rate – 64 kbps DL / 64 kbps UL for EYE-02 3G only
Audio parameters	AGC and Noise reduction system, HR, FR, EFR and AMR audio codec
Audio monitoring	Built-in high sensitivity omni-directional microphone with DSP processing
PC connectivity	USB port 2.0
Internal alarm detectors	Motion-in-Picture detector, PIR motion detector, Glass break detector, Tilt and vibration detector
Short range radio	868 MHz, Operated according to ERC REC 70-03
Remote control type	RC-86 Alkaline battery type L1016 (6.0 V), Typical battery lifetime approx. 3 years Complies with ETSI EN 300220,EN 55022, EN 50134-2,EN50130-4, EN60950-1

1 May vary depending of production series.
2 Possible to use Nokia NLC-2 battery.

8.1 Battery Information

Battery life time

The camera is powered by an AC adaptor and has a backup rechargeable battery. The battery provides power to the camera when the AC power fails.

The battery gradually decreases its capacity during its lifetime.

The capacity of the battery should be tested at least once a year: disconnect the AC power adaptor and measure the time until camera announces the battery low state. Replace the battery if the time is shorter than 10 hours for predefined profiles. See chapter 5.5 if you use customised profile. Always switch off the camera before replacing battery!
Using the device with 3G network can significantly decrease battery backup time!

Temperature Issues

To reach the optimal parameters the battery should be kept in an environment between 5 °C and 35 °C.

Exposing the battery to extremely cold or hot temperature will reduce the battery capacity and lifetime.

A battery's performance is particularly limited in temperatures below 0 °C. The backup time will shorten significantly and also charging will take longer time.

In -20 °C environment the backup time can drop down to 6 hours (for predefined profiles) and even less time in case using more power consumption settings (MIP active, IR LEDs on, ...)

Use the battery and power adaptor only for its intended purpose.

Never use any adaptor or battery that is damaged.

Do not short-circuit the battery. Accidental short-circuiting can occur when a metallic object such as a coin, clip or pen connects the battery contacts. Short-circuiting may damage the battery or the connecting object; it may even cause a fire.

Never expose the battery to temperature out of the operating temperature range -20 °C to +55 °C. A device with a hot or cold battery may temporarily not work, even when the battery is fully charged.

A battery's performance is particularly limited in temperatures well below freezing.

Do not dispose the batteries into fire as they may explode. Batteries may also explode if damaged.

Your camera may become warm during charging and during normal use. The camera is designed to be powered by AC power permanently.
Dispose the batteries according to local regulations – please recycle when possible and do not dispose them as household waste.
Do not dismantle or shred cells or batteries. In case of battery leak, do not allow the liquid to come in contact with the skin or eyes. In case of being contacted by such leak, flush affected place with a lot of water and seek the medical help..

8.2 WARRANTY

Hereby, JABLOCOM s.r.o., declares that this EYE-02 GSM Camera is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

The original conformity assessment document can be found at the web site *www.jablocom.com.*

RF Exposure - Specific Absorption Rate (SAR):

This product is designed not to exceed the limits for exposure to radio waves recommended by international guidelines developed by the independent scientific organization ICNIRP and include safety margins designed to assure the protection of all persons, regardless of age and health. The guidelines use a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit for wireless devices is 2 W/kg and the highest SAR value for this camera when tested complied with this limit.

This product is in compliance with the basic restrictions as specified in the European Council Recommendation [1999 519 EC] for the measured GSM 850, GSM 900, GSM 1800, GSM 1900, UMTS 900 and UMTS 2100 standards.

Regulatory information:

This camera is only intended for use in the country which it was sold in.

Limited warranty:

Subject to the conditions of this Limited warranty JABLOCOM s.r.o. warrants this product to be free from defects in design, material and workmanship at the time of its original purchase by a customer and for a subsequent minimal warranty period under the national legislation in force. Should your product need warranty service, please return it to the dealer from whom it was purchased. The defects will be eliminated free of charge by repairing or, at our discretion, replacing it.

Warranty conditions:

If you wish to make a claim under the warranty, please return the Product with all accessories in the original packaging to your dealer. The warranty is valid only if the original receipt issued to the original purchaser by the dealer, specifying the date of purchase and the IMEI corresponding with the Product, is presented with the Product to be repaired or replaced. Plastic parts, cables or accessories of the Product must not be visibly damaged, the Product must not show marks of the contact with liquid, the warranty seal must not be broken and the fault must be described.

This warranty doesn't cover any failure of the Product due to misuse, including but not limited to use in other than the normal and customary manner, in accordance with instructions for use and maintenance of the Product. Nor does this warranty cover any failure of the product due to accident, modification, adjustment, improper repair or acts of God.

This warranty doesn't apply to limited-life consumable components, such as batteries or accessories. It also doesn't apply to modules of other suppliers, such as SIM cards from the GSM provider.

The warranty provided doesn't affect the consumer's statutory rights under applicable national legislation in force, or the consumer's rights against the dealer arising from their sales/purchase contract.

Under no circumstances shall JABLOCOM be responsible for any loss of data or income or any special, incidental, consequential or indirect damages howsoever caused.

As the product is under continuous development, JABLOCOM reserves the right to make changes and improvements to any of the products described in this document without prior notice.

Operations and some features are SIM card and/or network dependent.

8.3 Safety Instructions

Read these guidelines. Not following them may be dangerous and/or illegal.

You alone are responsible for how you use your device and any consequences of its use. Do not switch the device on wherever the use of a wireless device is prohibited or when it may cause interference or danger.

Small Children

Do not leave your device and its accessories within the reach of small children or allow them to play with it. They could hurt themselves or others, or could accidentally damage the device. Your device contains small parts with sharp edges that may cause an injury or which could become detached and create a choking hazard.

Some countries may regulate the security camera usage by special laws. Please study the possible law restrictions for certain country before installing the camera.

Interference

Your device contains a transmitter and a receiver. When it is ON, it receives and transmits RF energy. Care must be taken when using the device in close proximity to personal medical devices, such as pacemakers and hearing aids. All wireless devices are susceptible to interference, which could affect performance.

We (JABLOCOM) are not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

Your device is designed not to exceed the limits for exposure to radio waves recommended by international guidelines. These guidelines were developed by the independent scientific organization ICNIRP and include safety margins designed to assure the protection of all persons, regardless their age and health.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Pacemakers

Pacemaker manufacturers recommend that a minimum separation of 15 cm to be maintained between a mobile device and a pacemaker to avoid potential interference with the pacemaker. To achieve this use the device body in distance more than 15cm from your pacemaker.

Hearing Aids

People with hearing aids or other cochlear implants may experience interfering noises when using wireless devices or when one is nearby. The level of interference will depend on the type of hearing device and the distance from the interference source, increasing the separation between them may reduce the interference. You may also consult your hearing aid manufacturer to discuss alternatives.

Medical devices

Please consult your doctor and the device manufacturer to determine if operation of your device may interfere with the operation of your medical device.

Hospitals

The device isn't designed to be used in hospitals, clinics or health care facilities without a consultancy with the staff or medical equipment producers. This request is designed to prevent possible interference with sensitive medical equipment

Wireless devices can cause interference in aircraft.

Explosive environments

In locations with potentially explosive atmospheres, obey all posted signs to turn off wireless devices such as your device or other radio equipment.

Areas with potentially explosive atmospheres include fuelling areas, below decks on boats, fuel or chemical transfer or storage facilities, areas where the air contains chemicals or particles, such as grain, dust, or metal powders.

Blasting Caps and Areas

The device isn't recommended to be used in a blasting area or in areas posted turn off "two-way radios" or "electronic devices" to avoid interfering with blasting operations. Observe restrictions, and follow all regulations and rules.

Do not attempt to disassemble your device or its accessories - only qualified personal may install or repair device equipment. If your device or its accessory has been submerged in water, punctured, or subjected to a severe fall, do not use it until you have taken it to be checked at an authorized service centre.

Always treat your device and its accessories with care and keep it in a clean and dust-free place.

Do not paint your device or its accessories.
Do not expose your device or its accessories to open flames or lit tobacco products.
Do not expose your device or its accessories to liquid, moisture or high humidity.
Do not drop, throw or try to bend your device or its accessories.
Do not use harsh chemicals, cleaning solvents, or aerosols to clean the device or its accessories.
Do not expose your device or its accessories to extreme temperatures, minimum -10 and maximum +55 degrees Celsius.

Battery and Charger Handling & Safety

Use only JABLOCOM approved accessories and batteries. Do not connect incompatible products or accessories. Take care not to touch or allow metal objects, such as coins or key rings, to contact or short-circuit the battery terminals.

Use the battery and power adaptor only for its intended purpose. Never use any adaptor or battery that is damaged.

The device is designed to be powered from the power adaptor. The limited capacity of the backup battery should power the device for approx. 24 hours. Your device may become warm during charging and during normal use.

Remember to make backup copies of all important data.

When connecting to any other device, read its users guide for detailed safety instructions.

8.4 Disposal Information

Before disposing of the camera, render it unusable.
During liquidation of material, it is necessary to adhere to the pertinent national regulations for the disposal of waste.

All used packaging materials are ecological and may be reused or recycled. Please contribute actively to saving the environment and pay special attention to the correct liquidation and reuse of packaging materials.

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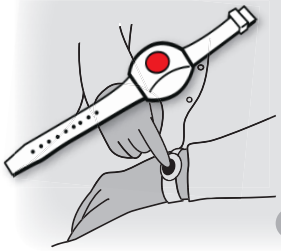
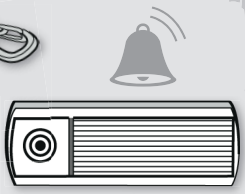
Controlers

1 personal HELP! button



2 remote control

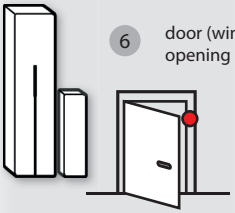


3 wall button

4 doorbell button

Detectors

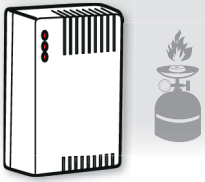
5 motion detector



6 door (window) opening detector

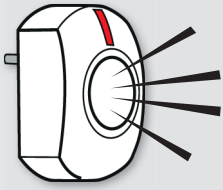
7 smoke detector

8 gas leak detector

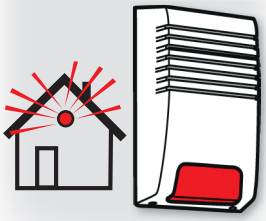


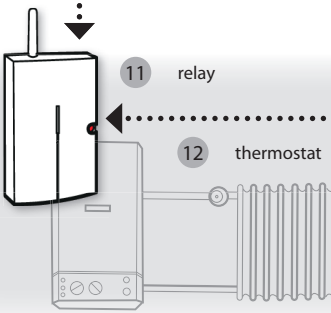
Sirens

9 internal siren



10 outdoor siren

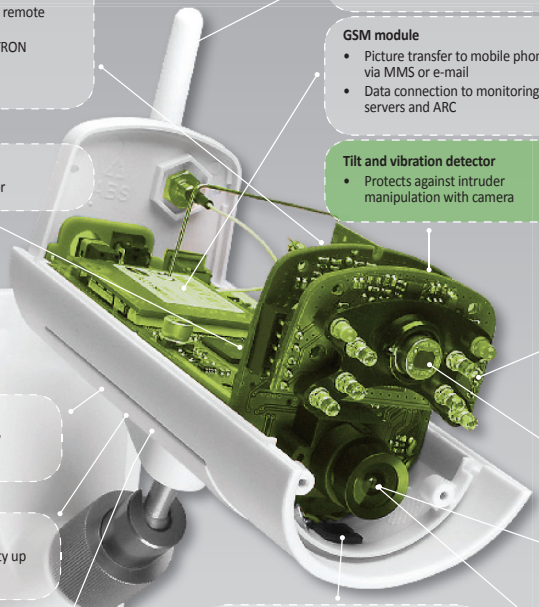




11 relay

12 thermostat

D Inside parts:



1 **Short range radio**
- 868 MHz band
- Allows cooperation with remote control and detectors
- Compatible with JABLOTRON professional wireless security system

2 **Buzzer**
- Built-in acoustic indicator

3 **Li-Ion battery**
- Provides back-up energy within electricity failure

4 **SD memory card**
- Extends memory capacity up to 32 GB

5 **SIM holder**
- For standard GSM SIM card

6 **Audio: Sensitive microphone + digital signal processing (DSP)**
Detection of:
- Glass-break
- Door-opening

7 **GSM antenna**

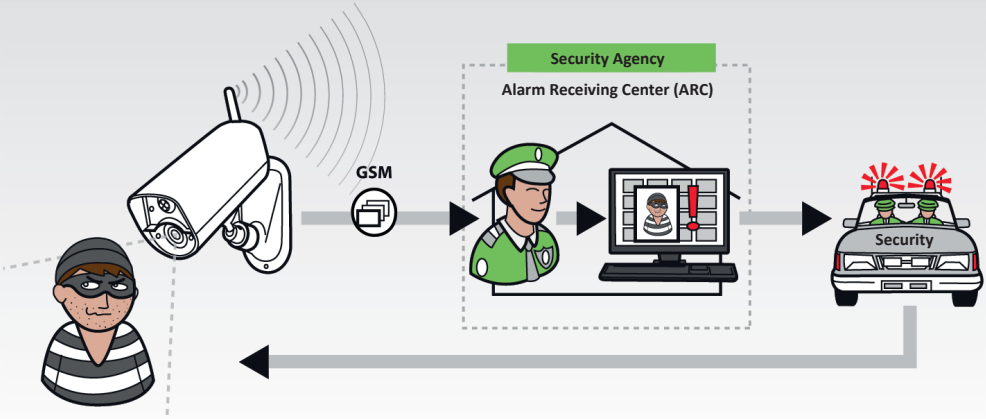
8 **GSM module**
- Picture transfer to mobile phones via MMS or e-mail
- Data connection to monitoring servers and ARC

9 **Tilt and vibration detector**
- Protects against intruder manipulation with camera

10 **Infrared LEDs**
- Illuminates the scene by non-visible IR beams for camera night vision

11 **Passive infrared (PIR)detector**
- Excellent sensitivity for human body detection

12 **VGA camera**
- CMOS chip 640×480
- 2.9 mm lens (95°)

13 **Motion-in-picture detector**
- DSP analysis provides excellent detection of the scene changes

E Security: